a first brush adapted to be electrically connected with a plus pole of the direct current power source, said first brush being made of a material having a high resistivity;

a second brush adapted to be electrically connected with a minus pole of the direct current power source, said second brush being made of a material having a low resistivity;

a commutator having a rotor wire winding, said first and second brushes being slidingly engaged with said commutator to supply the electric current to the rotor wire winding; and

a capacitor connected parallel to an output of the direct current power source.

2. (Once Amended - Clean Text) The direct current commutator motor as claimed in claim 1, wherein said first brush is a carbon brush and said second brush is a metal-mixed graphite brush.

REMARKS

Initially, Applicants would like to express their appreciation to the Examiner for the detailed Official Action provided, and for the acknowledgment of Applicants' Claim for Priority and receipt of the certified copy of the priority document in the Official Action.

Applicants would like to express their appreciation to the Examiner for the acknowledgment of Applicants' Supplemental Information Disclosure Statement filed on

December 27, 2000, by return of the Form PTO-1449. However, the Form PTO-1449 which accompanied Applicants' Information Disclosure Statement filed on September 15, 2000 was not returned. For the convenience of the Examiner, a second copy of the Information Disclosure Statement is provided herewith, including a copy of Japanesse Laid-Open Publication No. SHO 54-16242 (with English abstract) and a Form PTO-1449 listing the same. Also provided herewith is a copy of Applicants' date-stamped mailroom receipt as evidence that the Information Disclosure Statement was in fact filed on September 15, 2000. The Examiner is respectfully requested to consider the Information Disclosure Statement and to indicate such consideration by appropriately initialing and signing the enclosed PTO-1449 form and returning a copy of the signed and initialed form with the next communication.

On page 2 of the Official Action, the drawings were objected to as containing "wide black marks" in the middle of the pages. As an initial matter, it is noted that the present application, including the drawings, was filed electronically under the Electronic Filing System (EFS) pilot program. During discussions with USPTO officials in charge of the EFS program, it was explained to Applicants that the "wide black marks" were a result of the processing and printing of the drawings at the USPTO. Since Applicants have no control over the processing of electronically filed drawings within the USPTO, such an objection is improper and should be withdrawn. Further, the general rules waiver

contained in the Electronic Filing System notice at 1240 O.G. 45 (November 14, 2000), pertaining to applications filed electronically, should apply in the present situation. However, in order to expedite the prosecution of the present application, Applicants are submitting herewith a Letter to the Official Draftsperson with two formal drawing sheets containing drawings corresponding to those originally filed electronically. The Examiner is thus respectfully requested to withdraw the objection to the drawings, and to indicate that Applicants' formal drawings are acceptable, in the next Official Action.

On page 3 of the Official Action, the specification was objected to as containing bracketed paragraph numbers, and the claims were objected to as containing bracketed claim numbers. As noted above, the present application was filed electronically under the Electronic Filing System (EFS) pilot program. The objected to bracketing is a result of the EFS software format which was in use at that time. Since Applicants have no control over the EFS software format, such objections are improper and should be withdrawn. Further, the general rules waiver contained in the Electronic Filing System notice at 1240 O.G. 45 (November 14, 2000), pertaining to applications filed electronically, should apply in the present situation. In regard to the claim numbering, it is noted that the claims of the present amendment do not include the objected to bracketing. The Examiner is thus respectfully requested to withdraw the objections to the specification and claims.

On pages 3 and 4 of the Official Action, claims 1 and 2 were rejected under 35

U.S.C. § 103(a) as being unpatentable over ISAO (Japanese Patent Publication 57-196851) in view of BATES (U.S. Patent No. 5,306,974). The Examiner takes the position that ISAO shows a direct current commutator motor adapted to be driven by a direct current power source obtained by rectifying an alternating current power source (Figures 1, 2a and 2b), including first and second brushes (8,9) adapted to be electrically connected with plus and minus poles of the direct current power source, the first brush being made of material having a high resistivity while the second brush is made of a material having a low resistivity (abstract), and a commutator (7) having a rotor wire winding (601), the first and second brushes being slidingly engaged with the commutator to supply the electric current to the rotor wire winding.

The Examiner recognizes that ISAO does not show a capacitor connected parallel to an output of the direct current power source, but takes the position that BATES shows a capacitor (Figure 9; 60 and 62) connected parallel to an output of a direct current power source for the purpose of reducing electromagnetic noise, and that since ISAO and BATES are from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the other. The Examiner takes the position that it would have been obvious to connect a capacitor parallel to an output of the direct current power source as taught by BATES. In regard to claim 2, the Examiner takes the position that ISAO shows the first brush being a carbon brush (so called because it

contains more carbon than metal) and the second brush being a metal-mixed graphite brush (so called because it contains more metal than carbon).

Applicants respectfully traverse the rejection of claims 1 and 2 under 35 U.S.C. § 103(a) as being unpatentable over ISAO in view of BATES.

Claim 1, as presently amended, includes, inter alia, "A direct current commutator motor adapted to be driven by a direct current power source obtained by rectifying an alternating current power source, said motor comprising: a first brush adapted to be electrically connected with a plus pole of the direct current power source, said first brush being made of a material having a high resistivity; a second brush adapted to be electrically connected with a minus pole of the direct current power source, said second brush being made of a material having a low resistivity; . . . and a capacitor connected parallel to an output of the direct current power source."

In regard to claim 1, ISAO does not disclose a first brush made of a material having a high resistivity and a second brush made of a material having a low resistivity. Further, in regard to claim 2, ISAO does not disclose a first brush being a carbon brush and a second brush being a metal-mixed graphite brush. Instead, ISAO discloses both brushes as including mixtures of good electroconductive metal and graphite, with different mixing ratios for equalizing wearing amounts. Since the first brush includes good electroconductive metal, it is not made of a material having a high resistivity.

Unlike the present invention, spark discharge is not suppressed by such a positive pole brush, which includes good electroconductive metal. In regard to claim 2, such a brush, which includes good electroconductive metal, does not constitute a "carbon brush".

Further, as acknowledged by the Examiner, ISAO does not include a capacitor connected parallel to an output of a direct current power source obtained by rectifying an alternating current power source. BATES teaches the use of capacitors 60, 62 for the purpose of suppressing interference with signals of vehicle radios (note column 1, lines 15-21; column 2, lines 37-42; column 5, line 66 through column 6, line 12). However, there would be no apparent need for a radio interference suppressing capacitor, as taught by BATES, in the system of ISAO in which radio signal interference is of no concern. Only the use of impermissible hindsight based upon review of the disclosure of the present application would lead one to combine the teachings of ISAO and BATES as set forth in the rejection.

Applicants recognized the problem of increased brush wear due to increased spark discharge in systems with brushes formed of different resistivity materials, particularly ones which use a direct current power source obtained by rectifying an alternating current power source. In a system which uses a direct current power source obtained by rectifying an alternating current power source, the power source is switched on and off at a cycle that is twice the frequency of the alternating current. Therefore, spark discharge is

more likely to occur than in a system which uses pure direct current. Applicants solved this problem by providing a capacitor in such a system in order to minimize brush wear.

Accordingly, Applicants submit that the rejection of claims 1 and 2 under 35 U.S.C. § 103(a) is improper for all of the above reasons. Applicants respectfully request reconsideration and withdrawal of the rejection, and an early indication of allowance of these claims.

SUMMARY AND CONCLUSION

Entry and consideration of the present amendment, reconsideration of the outstanding Official Action, and allowance of the present application and all of the claims therein are respectfully requested and now believed to be appropriate.

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

The amendments to the claims that have been made in this amendment, which do not narrow the scope of the claims, and have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should there be any questions or comments, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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MARKED UP COPY OF AMENDED CLAIMS

1. (Once Amended) A direct current commutator motor [of a type] adapted to be driven by a direct current power source obtained by rectifying an alternating current power source, said motor comprising:

a first brush [and second brushes] adapted to be electrically connected with a plus [and minus poles] pole of the direct current power source, [the] said first brush being made of a material having a high resistivity [while the second brush is made of a material having a low resistivity];

a second brush adapted to be electrically connected with a minus pole of the direct current power source, said second brush being made of a material having a low resistivity;

a commutator having a rotor wire winding, said first and second brushes being slidingly engaged with [the] said commutator to supply the electric current to the rotor wire winding; and

a capacitor connected parallel to an output of the direct current power source.

2. (Once Amended) The direct current commutator motor as claimed in claim 1, wherein [the] said first brush is a carbon brush and [the] said second brush is a metal-mixed graphite brush.